



TITLE:

On the Short-Circuiting Condenser in Kyoto Cyclotron

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ABSTRACTS

On the Short-Circuiting Condenser in Kyoto Cyclotron

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In order to prevent discharge in the accelerating chamber during the operation, the dee stems of our cyclotron are insulated from ground and the ordinary shorting bars which determine the length of the dee lines have been replaced by the short-circuiting condensers to apply a d.c. bias to the dees. To be usable such condensers should fit for the large current of about 2000 ampere of about 13 MC with the small H-F loss as possible.

Taking this condition into consideration we have designed a condenser which consists of eight small water cooled plate condensers, each of which consists of 33 plates of aluminum of 1 mm thickness separated by 1.5 mm gaps giving 5900 pF. When H-F voltage of 75 KV is applied on the dee, it is expected that 135 amperes at 340 volts (peak) flow through one small condenser. Under such condition some properties of the condenser have been observed in connection with the following relations :

- 1) The relation between the vacuum and the supplied H-F voltage at a constant bias voltage.
- 2) Observation of discharges with various bias voltage and a constant vacuum.
- 3) The relation between the H-F voltage and the electrical power loss.
- 4) Measurements of the electrical power at the equilibrium temperature.

From the observations it has been ascertained that under our operation conditions, the discharge is suppressed by applying a bias voltage of more than 300 volts at the vacuum of 1×10^{-4} mmHg and the water-cooling is satisfactory and the power loss is about 2 KW in our design.

(Read at the semi-annual meeting of the Institute on June 12, 1954)

Beta-Spectra of Ag^{110} and Sb^{124}

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(Kimura Laboratory)

Beta-spectra of Ag^{110} and Sb^{124} are measured using the double coil, magnetic lens beta-ray spectrometer of about 2 percent resolving power. The detector consists of a G-M counter with Zapon window which will detect electrons of 5-kev and above, and mica window of 2.9